The role of talent in firm location decision:
A multiple-case study of clean-tech firms in Uppsala

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Abstract

The shift from an industrial-based to a knowledge-based economy has impacted market conditions and created a demand for a talented and skilled workforce in knowledge-intensive industries. This paper investigates what the role of talent is, when firms decide for a location by carrying out two studies. Firstly, an extensive literature review was conducted where three factors of firm location decision were identified as: clustering, soft and hard factors, and personal networks. The role of talent continuously emerged in the literature in regards to the three firm location decision factors and appeared to be intertwined in these. Consequently, these factors and the role of talent were conceptualized in an analytical framework. Thereafter, the analytical framework was applied to the second study when conducting a multiple-case study of three clean-tech firms in Uppsala, Sweden. This was done in order to investigate the role of talent in the firms’ location decision. The findings of the multiple-case study revealed that the role of talent was important during the location decision of all three firms where talent was intertwined with the identified location factors. Thus, the multiple-case study confirms that the role of talent impacts firm location decision through being intertwined in the identified firm location decision factors.

Keywords: Firm, Location, Decision, Talent, Clustering, Soft and Hard Factors, Personal Networks.
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1.0 Introduction

The location decisions of firms have long been recognized as a vital issue in both economical and social-terms were it has been of interest for different business developers (Florida, 2003). Regional economists have used business locations as a compass in order to value the health of the economy, businessmen have used location knowledge to decide where to locate their plants and state planners have learned from location preferences in order to attract new employment (Carlton, 1983). According to Erramilli, Agarwal and Seong-Soo (1997, p. 736) “Location-specific factors represents the special advantages accruing to firms operating at a particular location”.

Traditionally, firms have been viewed as the driving force of economic growth and their choice of location can directly impact the success of the firm, especially in a changing environment driven by high competition (Bhat, Paleti & Singh, 2014; Chen & Yu, 2008; Forsgren, 2013; Porter, 1998). The shift from an industrial-based to a knowledge-based economy has impacted the market conditions (Shefer & Bar-El, 1993). As a result, human capital now functions as the dominant element of economic growth theories (Florida, 2005; Storper & Scott, 2009). The elevated mobility of people, in combination with global demographic and economic trends, has posed a dilemma for firms when attracting and withholding the right employees (Beechler & Woodward, 2009). The increased demand for people with the right competence is the result of innovative new products, which consequently have created new industries, roles and services (Porter & Heppelmann, 2015).

In order to create a competitive advantage, firms rely heavily on employing competent people, which in turn is argued by some researchers to be a strong reason to why firms establish themselves in specific locations (Beechler and Woodward 2009; Florida 2003; Storper & Scott 2009). Competent people are recognized as; a group of intelligent, ambitious and energetic individuals, with the skills to deal with complex processes, which are defined as talent (Beechler & Woodward, 2009; Chambers et al., 1998). Florida (2003) is one of the main researchers who argued that talent has a strong influence on a firm’s location decision. According to Florida (2005) economic efficiency and low costs are no longer driving economic growth in the society; rather creativity has emerged as a new central force. In turn, creativity is defined by Florida (2005) as a
talented and highly skilled workforce that utilise creativity to contribute to business development.

In a study by Murphy, Fox-Rogers & Redmond (2015) factors impacting location decisions are discussed in regards to Florida’s (2003) statement of firm locating to areas where a creative labour pool is present. Murphy et al. (2015) present the concept of soft and hard factors as determinants in firm location decision, where soft factors are regarded as urban amenities that attract talent and hard factors are viewed as qualified labour, or infrastructure that attracts firms. According to Florida (2005) firms locate to places where they can access a large pool of talent, and talent move to areas that can offer certain amenities, and therefore soft factors are increasingly important for firms when deciding location. Musterd and Gritsai (2012) are also discussing Florida's (2003) research, and are like Murphy et al. (2015) questioning Florida’s arguments by claiming that there is not sufficient evidence to support this theory. In contrast, they argue that hard factors are superior to soft factors when it comes to firm location decision. The study of Murphy et al. (2015) continues to discuss additional factors of firm location decision as well, especially in regards to the more traditional factors such as clustering, where similar firms tend to locate close to each other. In addition, Musterd and Gritsai (2012) also introduce personal networks as a compliment to hard and soft factors in firm location decision. Nevertheless, the increased focus on talent has raised a discussion in terms of its impact within the context of the location decision of modern firms, where there are strong opinions both for and against the argument (Christensen & Drejer, 2005; Florida, 2003; Florida, 2005; Grabher, 2004; Murphy et al., 2015; Musterd & Gritsai, 2012).

1.1 Research problem and research question
The role of human capital in terms of firm location determinants has traditionally been viewed as only one of several other factors, and is according to Arauzo-Carod (2013) and Bhat, Paleti and Singh (2014) missing a deeper analysis. Florida (2003) is one of the researchers who sparked the flame of the debate of talented and creative individuals as key drivers of firm location decision. According to Zenker, Egger and Farsky (2013) firm location decision is partly based on the talent in the area, and thereby the potential of the area itself. The issue of traditional firm location preferences has been extensively researched according to previous studies (Bhat et al., 2014; Carlton, 1983; Chen & Yu, 2008; Frenkel, 2001; Li et al., 2016). However, the discussion of talent as one of the main drivers of firm location decision is not as extensively researched according to Arauzo-
Carod (2013), Florida (2003) and Murphy et al. (2015). As a result, talent and its impact on firm location decision requires further evaluation in order to clarify its potential importance (Rosenthal & Strange, 2001; Matouschek & Robert-Nicoud, 2005). Subsequently, there seems to be a lack of a deeper understanding of talent in the context of firm location decision in the new era of economic development. Therefore, the purpose of this study is to contribute to the discussion of firm location decision, specifically in regards to the role of talent. Thus, the research question follows:

“**What is the role of talent when a firm decides for a location?**”

### 1.2 The structure of the paper

This paper is structured by carrying out two studies: the first study is an extensive literature review that investigates previous research of firm location decision and the role of talent. By analysing the extensive literature review, factors of firm location decision were identified and conceptualized together with the role of talent, resulting in the analytical framework. The second study is a multiple-case study that represents the empirical part of the paper. The analytical framework is applied to the multiple-case study in order to investigate the role of talent in firm location decision.
2.0 Literature review

The extensive literature review has been conducted based on the motive to understand the role of talent in firm location decision. As presented there are different views of what factors impact firm location decision and what the role of talent is in this context. There are strong arguments both for and against talent as a factor of firm location decision. The aim with this literature review is to gain a deeper understanding of the role of talent in the context of traditionally acknowledged firm location factors. The extensive literature review illustrates existing research within firm location decision, and the following is presented; firstly the literature review method introduces the research process of the first study, and secondly the literature regarding the identified factors of firm location decision and the role of talent are illustrated. Finally, the literature review is conceptualized by an analytical framework, which is later applied to the second study when analysing the results.

2.1 Literature review method

The extensive literature review illustrates the range of articles within firm location decision. In the initial phase of the research the following keywords: firm* location* and decision* were used in the topic search in Business Source Premier. When the string of words was applied together in the search field of the database the total result was 1596 articles, whereby 548 abstracts were read and 32 articles were used. The 32 articles were partly selected based on the factors that were identified earlier in the introduction by the study of Murphy et al. (2015) and Musterd and Gritsai (2012) in regards to firm location decision: clustering, soft and hard factors and personal networks. Nevertheless, throughout the 32 articles these factors recurred in similar forms. They also revealed a strong connection between each of the factors and by this reasoning it was decided to use all the three factors. In the later phase the keyword talent* was combined together with the string of keywords resulting in only 6 articles, were only 1 out of the 6 articles could be used since the other five were not connected to the identified factors. Thereby a new search was done were the research mentioned in the 32 articles were categorised in order to penetrate the topic of talent in the context of firm location decision further, thereafter 11 additional articles were used. In total 44 articles were used in the literature review. The literature search was conducted in February, March and April 2016, and included articles within the field of business, economics, management and regional science.
2.2 The identified factors of firm location decision

The factors that appeared in the 44 articles from the extensive literature review were categorized in order to identify patterns, where the following three keywords recurred in the context of firm location decision: clustering, soft and hard factors, and personal networks. The role of talent appeared throughout the articles as a topic in connection to the other three keywords. However, only a few articles described talent as a main factor of firm location decision. The identified factors from the 44 articles in the literature search are presented in the following table, in the order of times they recurred in the context of firm location decision.

<table>
<thead>
<tr>
<th>Factors</th>
<th>Appears in</th>
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Table 1: Identified factors of firm location decision

As presented in table 1, the same authors appear several times in regards to the different factors. This illustrates the connection between the different factors, and indicates that they could potentially be intertwined. In order to illustrate the connection all four factors have to firm location decision they will be presented separately in the following sections.
2.2.1 Talent

The need for specialized expertise and skills has increased the pressure on firms to find the right type of talent, and patterns have been identified showing firms moving to certain locations in order to find the right talent (Porter & Heppelmann, 2015; Zenker, et al., 2013). According to Glaeser and Kohlhase (2004, pp. 1) we live in: “[..] a world where It is essentially free to move goods, but expensive to move people.”. However, research within the concept of talent and its effect on firm location decision is limited (Arauzo-Ca rod, 2013; Bhat et al., 2014; Florida, 2003; Matouschek & Robert-Nicoud, 2005; Murphy, et al., 2015). Almazan et al. (2007) and Glaeser and Kohlhase (2004) argue that there has been a shift towards close proximity to skilled people as a central part of the decision-making process, and that the importance of traditional factors such as natural advantages and transportation costs has declined. Li et al. (2016) argues that factors as human capital, amenities and socio-economic characteristics can potentially be as important to firm location choice as for example clustering. Additionally, Jofre-Monseny, Marín-López and Viladecans-Marsal (2014) argue that the location decisions for firms in knowledge-intensive industries can mainly be motivated by the need of employees with industry-specific knowledge and therefore firms locate to environments that offers a pool of specialized workers. The talent pool consists of and grows through the influence from; universities, research institutions, entrepreneurial spirits, venture capital, lead users and supporting infrastructure (Chen & Yu, 2008).

The workforce impacts the location decision of firms in different ways. For example, the increased growth or decline of the workforce creates new needs for firms and thereby influence new location decision (Kronenberg, 2013). According to Bhat et al. (2014) human capital could potentially have an impact on the number of new businesses in an area, since businesses are dependent on skilled labour to be able to execute operations and related activities. Additionally, Burnson (2015) debates that the concentration of talent is an increasing important and deciding factor when firms choose locations. Additionally, according to Florida (2003) knowledge sourcing has emerged as an increasingly important motivation of location preferences, where firms with the ability to rapidly mobilize talent have a great source of competitive advantage. According to Grabher (2004, p. 103) "Knowledge, it seems, has become magic".

Beechler and Woodward (2009) argue that the expansion of the global economy has resulted in managers becoming concerned in regards to the increased global competition for talent, meaning not having the right type of people with skills that could
be able to confront business challenges. Albeit the world faced an economic slow-down during 2009, the quest for talent did not cease and it is still an important factor for firms in order to stay competitive (Beechler & Woodward, 2009; McDonnell, 2011). McKinsey & Company first published the report “War for Talent” in 1998 arguing that over the next coming 20 years the utmost important resource for firms would be highly skilled individuals who are defined as globally astute, operationally agile and technologically literate (Chamber et al., 1998). The access to a skilled workforce aids in developing innovative businesses, which adds value to firms and results in a competitive advantage (Snieska & Zykiene, 2015). The shift from an industrial-based to a knowledge-based economy has impacted the global quest for a highly skilled workforce, and as a result the need towards intangible knowledge and human has assets increased (Beechler & Woodward, 2009). According to OECD’s report in 2009, the progress for firms adopting new technologies have intensified the need for a skilled workforce, which is adaptable to rapid changes. Additionally, the developments of new technological advanced products and services demand new types of specialists and skills within firms (Porter & Heppelmann, 2015), where higher knowledge is a scarce resource resulting in an increasing competition for people possessing high potential (Audretsch et al., 2005). High-tech industries consists of knowledge-intensive firms, meaning firms where success is argued to be more dependent on the individual’s skills in terms of creativity, ingenuity and talent (Turok, 2004). It is argued that the transformation of the economy is what has fuelled the so called war for talent, were firms increase their focus on investing in human assets (Beechler & Woodward, 2009; Turok, 2004).

2.2.2 Clustering
A traditional reason for firm location decision has been recognized as the clustering effect (Porter, 1998). This has been the most recurring subject throughout the literature search in the context of firm location decision. Clustering and its effect of firm location decision is a widely recognized factor, especially for high-tech firms (Florida, 2003; Scott, 2006). A location acts as a locus of economic activity, since it has been proved that similar firms tend to cluster together in one area (Oum & Park, 2003). Porter (1998, p. 78) defines clusters as “Critical masses - in one place - of unusual competitive success in particular fields”. There are several famous locations representing clustering. For example, Silicon Valley is known for its innovation and technology, and Southern Germany is known for its high-performance auto industry (Porter, 1998). Depending on the business area of the firm, clustering can impact a firm’s location decision differently. For example, research and development (R&D) affiliates search for locations based on
indications of skills, employment rates and labour costs (Jaffe, Trajtenberg & Henderson, 1993). A study by Florida and Kenney (1994) reveals that R&D firms locate close to universities in order to gain access to high quality research. This is consistent with Siedschlag et al. (2013) study on R&D activities by MNCs in the European Union (EU), where closeness to centres of excellence, research and innovation were important factors when firms located across the EU.

The interrelation within the cluster, in terms of networks, aids innovation and strengthens the cluster itself (Scott, 2006). Benefits of clustering are spillover-effects of knowledge and higher level of efficiency (Feldman, 2000), which in turn is enabled through personal contacts (Audretsch et al., 2005). Simultaneously, this facilitates closer collaborations and competition (Bontje et al., 2011). Dumais et al. (1997) and Rotemberg and Saloner (2000) claim that intellectual spillovers are more important than the close presence of suppliers and customers. This means that agglomeration is the result of the importance of skilled labour market pooling for firms (Rosenthal & Strange, 2001). This is however debated; Almazan, De Motta and Titman (2007, p. 1323) suggest “[…] labour market considerations do not necessarily increase the tendency of firms to cluster”. Nevertheless, Audretsch et al. (2005) claims that knowledge-spillovers can be defined as a firm location strategy on its own, since firms locate within close proximity to universities in order to benefit from both research and the human capital within the area. This is especially important for high-tech industries (Dumais et al., 1997), where the location decision of high-tech industries is different from traditional industries (Frenkel, 2001). For example, they often locate close to research and science centres as a result of their innovations and product development, which aids them to gain faster market penetration (Shefer & Bar-El, 1993). For high-tech firms clusters also facilitate the recruitment process of skilled people through local universities and from other firms and vendors, while simultaneously securing talent within the firm and reducing employee turnover costs (Chen & Yu, 2008; Porter & Heppelmann, 2015). Additionally, according to Jo and Lee (2012) the geographically bounded knowledge of a firm’s surrounding co-located competitors is of high importance when it comes to their choice of location. Nevertheless, there are examples of successful high-tech firms that initially located away from industry clusters, such as Microsoft (Almazan et al., 2007).

### 2.2.3 Soft and hard factors

The concept of soft factors can be explained from a firm perspective as amenities available in a location in order to enhance the firm’s image and to attract a suitable
workforce (Florida, 2003; Glaeser, 2005; Murphy et al., 2015). According to Curran, Lynn and O’Gorman (2016) amenities can be the desire to retain a certain quality of life, meaning living in an attractive and safe location that in turn can have a strong effect on the location decision of knowledge-intensive firms. Soft factors are recognized as the work environment, closeness to nature and a location’s historical and cultural traits (Bontje et al., 2011; Murphy et al., 2015). In contrast, Bontje et al. (2011) argues that hard factors such as the closeness to financial centres, international airports, supplier networks and the access to an international labour pool are of great importance for large firms when choosing location. Hard factors impacting firms can be the availability of skilled labour, accessible office space and attractive rent levels (Bontje et al., 2011; Murphy et al., 2015).

Storper and Scott (2009) argue that the economic shift during the recent decade has increased the focus of soft factors, as a key driver of firms’ location decision. Bontje et al. (2011) agree with this view in terms of the shift from an industrial-based to a knowledge-based economy, increasing the focus on soft factors, where knowledge-intensive industries demand highly skilled and specialized employees. According to Christensen and Drejer (2005) there appears to be a pattern revealing that soft factors might be of higher importance than for example hard factors such as infrastructure. However, Murphy et al. (2015) presents arguments for soft factors playing a secondary role of firm location choice, and instead hard factors are argued to be the primary reason for firm establishment.

2.2.4 Personal networks
A recent study by Musterd and Gritsai (2012) recognize personal networks as an additional factor influencing firm location decision, and as a compliment to hard and soft-factors. Personal networks are defined as both personal and professional links and relations between people (Grabher, 2004). These can affect firms’ location decision in different ways (Ceci & Iubatti, 2012; Erramilli, et al., 1997). These networks connect people to certain places in an emotional way, and factors such as people’s birthplace or where they have studied, become of importance when selecting firm locations, collaborations and relocations (Musterd & Gritsai, 2012; Turok, 2004). Nevertheless, in a study by Curran et al. (2016) the place of birth has a secondary role when it comes to location decisions of technology-intensive firms. Musterd and Gritsai (2012) strongly argue that people are drawn to places where they already have an established personal network. Small- and medium sized enterprises (SMEs) are more likely to locate based on
personal networks of the decision-makers (Ceci & Iubatti, 2012), while the location decisions of multinational corporations (MNCs) are usually based on strategic competitiveness (Erramilli, et al., 1997). Ceci and Iubatti (2012) identified through their study on Italian firms that inter-firm relationships, both personal and professional, increase the economic growth and success of the firm. According to Gulati (1998) and Mellewigt (2007) quoted in Ceci and Iubatti (2012, pp. 567) “Personal relationships, enabling partners to trust each other’s behaviours, foster knowledge exchanges that are essential for the development of networks”. The impact of personal networks, tend to be stronger for smaller firms than for larger since they rely highly on knowledge-spillovers and face-to-face relationships in order to become successful (Turok, 2004).

2.3 Analytical framework
The extensive literature review has identified several different factors argued to have an impact on firm location decision: talent, clustering, soft and hard factors, and personal networks. The literature review revealed that all factors are intertwined with each other to a certain extent, and collectively they seem to affect firm location decision. From the literature review the role of clustering, soft and hard factors, and personal networks, presented clear evidence of representing individual factors to firm location decision. The role of talent, in the context of concepts such as skilled labour, represented a recurring aspect in the literature review of the three identified firm location factors. However, the literature review revealed that research within the role of talent as a main factor of firm location decision is lacking a deeper understanding. Instead, it appeared as if talent was intertwined in the other factors. The findings from the literature review are conceptualized in figure 1, representing the analytical framework with the three factors: clustering, soft and hard factors, and personal networks represents individual circles that are to some extent linked with each other. Talent serves as a circle in the middle of the three factors, in order to demonstrate how it appears to be intertwined in the concepts of the other three factors. Based on the findings in the literature review, the aim with the multiple-case study is to investigate how the role of talent is considered by firms when deciding for a location, to understand if talent is intertwined in the decision or not. The analytical framework in figure 1 will be applied in the multiple-case study to analyse the empirical findings in a coherent manner.
Figure 1: The analytical framework
3.0 Methodology

Our research question is of an explanatory nature, aiming to understand the relationship between firm location decision and the role of talent. According to Saunders, Lewis and Thornhill (2009) the aim of an explanatory research is to study a situation, or a problem, and then be able to explain the relationships between the different variables. In order to investigate the research question "What is the role of talent when a firm decides for a location?", a deductive approach was undertaken. The analytical framework, which was the result of the first study, provided the theoretical ground for the multiple-case study and was used when analysing the empirical data. The purpose of using a deductive approach was to test the analytical framework presented in the first study. According to Saunders et al. (2009) starting with a framework has some advantages in terms of linking the research to the existing knowledge of the subject, and provides a set objective that has derived from the theory. The use of an deductive approach also provides key concepts and patterns to look for when analysing the data (Saunders et al., 2009), which can be linked to the analytical framework as presented in the first study (see figure 1).

The research strategy is based on a multiple-case study approach in order to generate answers to our research question, which is based on “what?”. According to Saunders et al. (2009) a multiple-case study strategy has the ability to answer these types of questions. The aim with using multiple cases is to be able to generalize the findings, where a single case study is often used in extreme cases where the are very strong justifications for the chosen critical case (Saunders et al., 2009). A case study strategy is used when in need of "a strategy for doing research which involves an empirical investigation of a particular contemporary phenomenon within its real life context using multiple sources of evidence." (Robson, 2002:178, quoted in Saunders et al., 2009 p. 145).

The multiple-case study approach was chosen in order to gain a deeper understanding of the role of talent in the firm location decision, where multiple sources of evidence were used. This is in accordance to Saunders et al. (2009) belief that the data collection technique of a case study should be based on multiple sources that are used in combination. According to Yin (1994, p. 22) “[...] the definition of the unit of analysis (and therefore the case) is related to the way the initial research question have been defined”. As a result, the unit of analysis for the multiple-case study is to investigate the role of talent in the context of firm location decision in three different cases.
3.1 The multiple-case study design

The multiple-case study investigated three clean-tech firms located in Uppsala, Sweden. The data collection for the case studies included different techniques such as open ending face-to-face in depth interviews, direct observation, pilot studies and different forms of documents. Two pilot studies were conducted in the initial phase of the case studies, where one was a direct observation and the other a telephone interview. All three case studies contained multiple sources of evidence: face-to-face in depth interviews, company material, online articles and newspapers, and websites. This is referred to as triangulation, which is applied with the aim to provide more accurate and solid findings through the use of multiple sources (Bryman & Bell, 2007; Saunders et al., 2009; Yin, 1994). Yin (2012, p. 10) argues that a " [...] good case studies benefit from having multiple sources of evidence". Table 1 presents the sources of evidence for the multiple-case study.

| Company material       | Airtwatergreen 2016 |
| Direct observations    | Disting 2016         |
| Online articles and newspapers | Almi 2015 |
|                        | Alpin 2016 |
|                        | Berglund 2012 |
|                        | Eden 2014 |
|                        | Edeff 2014 |
|                        | Energinybyter 2010 |
|                        | Johansson 2011 |
|                        | Karlsson-Otsson 2009 |
|                        | Lundberg 2014 |
|                        | Nyrenk 2016 |
|                        | Von Essen 2016 |
|                        | Widforss 2016 |
| Personal interviews    | Ljunggren 2016 |
|                        | Söderberg 2016 |
|                        | Wallström 2016 |
|                        | Widforss 2016 |
| Published articles     | Stockholm Chamber of Commerce 2015 |
|                        | Stockholm Chamber of Commerce 2015:6 |
|                        | Stockholm Chamber of Commerce 2012:7 |
| Websites               | City of Uppsala 2015 |
|                        | Green Innovation Park 2016 |
|                        | JTJ 2016 |
|                        | Miljöinnovation 2016 |
|                        | Stockholm Chamber of Commerce 2015 |
|                        | Stockholm Chamber of Commerce 2016 |
|                        | IUC 2016 |
|                        | Uppsala University 2016 |
|                        | Vasakronan AB 2016 |
|                        | Vasa Sverige 2016 |

Table 2: Triangulation - sources of evidence for the multiple-case study
3.2 The selected location and industry of the multiple-case study

The chosen city of the multiple-case study is Uppsala, Sweden. The decision of the city was partly based on collaboration with Stockholm Chamber of Commerce, Uppsala Regional Office, which impacted the choice of Uppsala as the location for the multiple-case study. The chamber operates by promoting business friendly policies and enhancing local, regional and national competitiveness (Stockholm Chamber of Commerce, 2016a). Due to the fact that firm location preferences varies among different sectors (Bhat, Paleti, & Singh, 2014; Matouschek & Robert-Nicoud, 2005), one industry has been chosen to be investigated. As presented in the literature review, the identified factors of firm location decision are often connected to high-tech firms. For example, clustering is recognized to have a clear connection to high-tech firms (Scott, 2006), and in terms of soft and hard factors there is a need for highly skilled employees in knowledge-intensive industries (Bontje et al., 2011).

One unique aspect of Uppsala is the closeness to academia, the internationally recognized research centres, and the leading industrial clusters (City of Uppsala, 2015a). Through the two universities, Uppsala University and the Swedish University of Agricultural Science (SLU), the city has benefitted from taking part of cutting edge research. This in turn has resulted in the city becoming a desirable location for knowledge-intensive industries such as clean-tech, life-science and information- and communication technology. (Ibid.) These types of technology driven industries also have an increased need for a skilled workforce (OECD, 2009). The clean-tech industry is one of the city's focus sectors as well as one of the growing industries (City of Uppsala, 2015a). As a result of the factors of firm location decision being connected to high-tech firms, and that the clean-tech industry is one of the growing high-tech industries in Uppsala, the clean-tech industry in Uppsala has been chosen for the multiple-case study. Clean-tech firms operate within energy and environmental technology with a long-term purpose of diminishing the negative effects on the environment, which involves solutions such as; ecosystem services, life-cycle management, environmental technology consultants, climate strategies within manufacturing and energy reducing technologies such as solar and wind-power (Almlund, Jespersen & Riis, 2012; City of Uppsala, 2015a).

3.3 The choice of the three cases

Three clean-tech firms were identified for the multiple-case study, all founded and located in Uppsala. There are disparities between the firms and this was a conscious choice, since according to Yin (1994) each case in a multiple-case study should either be
similar or contrasting to each other. All three firms are of different size, structure and display expertise within different areas of clean-tech. Additional firms were considered for the multiple-case study. However, no other firm displayed any other disparities that were not already found in the three chosen cases. Therefore, it was decided not to add additional firms to the multiple-case study, as they would not add any value to the multiple-case study.

The first case chosen was Airwatergreen, an innovation company which specializes in energy recovery and air treatment (Airwatergreen, 2016), and is recognized as one of Sweden's most promising high-tech companies (Nyteknik, 2016). The firm is known for its innovation in heat condensation, making it possible to condense moisture in the air to water in any temperature (Miljöinnovation, 2016). Airwatergreen was founded in 2009 by two engineers in Uppsala with the intention to provide water for the poor people of the world, but now the firm functions as a pure energy and climate project (Airwatergreen, 2016). The firm is recognized as just leaving the start-up phase, therefore potentially being in an expansion phase where hiring new employees might be in focus. Therefore, it was of great interest to investigate why the firm chose to locate in Uppsala and what role talent had on their location decision. Furthermore, the choice was also based on the interest of identifying potential connections in regards to the firm's success and the different factors in the literature review presented in the analytical framework (see figure 1).

The second case was Greensway, a consultancy firm founded in 2013 within environmental statistics, R&D and environmental projects (Greensway AB, 2015a). The choice of Greensway was mainly based on the firm being consultants within the clean-tech industry, where the main focus of the firm is to offer services rather than products. Thus, representing a different type of organisation in comparison to the other two cases. Further, the firm is built on the consultants having expertise within the specific area of ecology, which implicates that the need for skilled labour could have affected the location decision of the firm. Greensway was an apparent choice for the multiple-case study due to the interest to understand the role that the access to talent played for the firm when deciding a location.

The third case was Solibro Research AB (Solibro), the R&D-centre to one of the world’s leading manufacturers of CIGS thin-film modules (Solibro, 2016). Solibro was founded in 2003 by four professors at Uppsala University, who had been doing research together
since the 1980’s (Uppsala University, 2016a). In 2012, the firm was acquired by a Chinese corporate group, but still remained located in Uppsala (Uppsala University, 2016a). Due to the fact that the firm belongs to a Chinese corporate group, it is the only multinational corporation in the study. Solibro is also the only firm in the multiple-case study that has been established through a research group at a university. The question we were interested in was why the Chinese corporate group allowed Solibro to stay in Uppsala, instead of moving the firm abroad. This lead to the interest of understanding if the research group at the university had anything to do with the location, and whether the skills and expertise could only be found in the existing location in Uppsala.

3.4 Conducted pilot studies
Two separate pilot studies were carried out, one in the initial phase of the research, aiming to better understand the external environment of the multiple-case study. The second pilot study took place after the literature review, in order to gain a deeper understanding of the role of talent in firm location decision in a real practice. The pilot studies were conducted since they according to Yin (1994) aid researchers in refining data collection plans, both in regards to the content and the following research process.

3.4.1 Direct observation of the external environment
The first pilot study was a direct observation, in form of attending a workshop organized by Stockholm Chamber of Commerce, Uppsala Regional Office. The workshop is a yearly gathering called Distinget, where the overall objective is to gather politicians, the public and the private sector to meet and brainstorm about various business- and society-related topics (City of Uppsala, 2016). Distinget was selected in the initial phase of the multiple-case study, as a pilot study in order to gather information on the external environment of the firms operating in Uppsala. The varied members of the workshop provided a broader understanding of the external environment in Uppsala. This allowed us to as Yin (1994) refers to, observe the phenomenon from different angles. The main information derived from the workshop was in regards to the collaboration between academia, politicians and the industry. All three sides argued that the cooperation could increase, and that Uppsala possesses great potential for future development and growth, especially if they all unite. This was taken into consideration when the industry and the context of the firms were selected, since the chosen clean-tech cases were positioned in a knowledge-intensive industry that presumably would involve some type of collaboration between the academia and industry, through for example R&D processes.
3.4.2 Testing the research phenomenon in real practise
The second pilot study was conducted after the extensive literature review, and was done in order to gain a deeper understanding for phenomenon of firm location decision and the role of talent. Further, it also aimed to see if the factors identified in the literature review could serve as factors when applied in a real practice. This was done through testing the interview questions, which were developed from the analytical framework as presented in figure 1. Therefore, an interview was conducted with Jacob Söderberg, the Vice CEO of the clean-tech firm Växa Sverige located in Uppsala. Växa operates as consultants towards firms within the agricultural industry (Växa Sverige, 2016). According to Söderberg (2016) the firm has had a historical strategy to be close to academic experts and closely collaborates with SLU. The preliminary interview questions were asked during a 50-minute phone interview with the Vice CEO. The interview questions were tested and Söderberg’s (2016) answers confirmed the links in the analytical framework. They also, provided answers that illustrated the factors in figure 1 with the role of talent as an intertwined factor. Thereby, both the analytical framework and the interview questions were considered to be suitable for the multiple-case study.

3.5 Conducted interviews and interview guide
According to Saunders et al. (2009) interviews are important for case studies as they provide valid and reliable data relevant to the research question. The conducted interviews are part of the triangulation material (see table 2), and consisted of in-depth face-to-face interviews and included semi-structured, and open-ended questions based on the analytical framework as presented in figure 1 in the first study. The purpose of using so called non-structured interviews is to gain richer and more extensive data (Yin, 2012). The conducted interviews were based on 21 main questions, where several included sub-questions that were divided into A, B and C-sections (see appendix 1). In total there were 39 questions, however the sub-questions were not asked if the interviewee could not answer the main question. The questions were the same for each interview, although the order varied. The aim was to have an open discussion and to have a natural flow in the conversation where the interviewees’ felt comfortable as, according to Saunders et al. (2009, p. 320) “The order of questions may also be varied depending on the flow of the conversation”.
The three interviews took approximately 90-120 minutes each, and were held at the offices of the firms. All of the interviews were audio-recorded and answers were noted down during the interviews, and transcribed shortly thereafter. After transcribing the interviews, different factors were categorized in accordance to the analytical framework. Then the links between them were analysed. In the initial phase of contact each firm was offered the choice of anonymity, which refers to protecting the identity of the participant throughout the entire documentation of the research (Saunders et al., 2009). However, all of the interviewees agreed to have their names published. In order to give the interviewee an overview of the interview before starting, an interview guide was created (see appendix 2). In the interview guide soft and hard factors were shown separately, to clarify the difference between them. Further, all different terms in the guide were shortly explained to the interviewee before initiating the interview. The following table presents the three firms and the name and position of the participants.

<table>
<thead>
<tr>
<th>Name of firm</th>
<th>Name of interviewee</th>
<th>Position of Interviewee</th>
</tr>
</thead>
<tbody>
<tr>
<td>Airwatergreen</td>
<td>Jonas Wamstad</td>
<td>Founder and CEO</td>
</tr>
<tr>
<td>Greensway</td>
<td>Olof Widenfalk</td>
<td>Founder and CEO</td>
</tr>
<tr>
<td>Solibro</td>
<td>Mats Ljunggren</td>
<td>CEO</td>
</tr>
</tbody>
</table>

Table 3: Founders and CEOs of the selected firms

3.6 The analytical approach
All three cases were first analysed through the analytical framework as single cases, in accordance with the analytical framework in figure 1, and the different identified factors were used in terms of categorizing the information and to understand the role of talent in each factor for every case. The analytical framework was used to evaluate the different cases by the same means. Thereafter, a cross-case approach was applied in order to investigate the role of talent in the firm location decision and whether it could be argued to have a connection when analysing the three cases. The reason for choosing
a cross-case logic is according to Yin (2012) that these types of findings can support a broader pattern of conclusions.

3.7 Critical overview of the research methodology

One of the limitations of the multiple-case study concerns the interviews, where one of the interviewees Mats Ljunggren the CEO of Solibro, was not responsible for the initial location decision of the firm. However, at present Ljunggren holds the highest position in the firm in Sweden and is highly informed regarding its establishment and the acquisition phase. The amount of case studies could also be criticized due to the use of only three different cases, which decreases the opportunity for generalization. However, it enabled a deeper understanding of each case in terms of studying the location decision in detail, using different sources of evidence by triangulation. Additionally, the interview questions were constructed from a firm perspective, even though personal opinions of the interviewee can according to Saunders et al. (2009) still influence the answers. Hence this type of biases should not be neglected. Additionally, since the investigated case studies are present within the same industry, the results might also provide industry specific answers and thereby might not be applicable to other business areas.
4.0 The external environment of the multiple-case study

Uppsala is located in one of Europe’s fastest growing national capital region (City of Uppsala, 2015a; Parilla et al., 2015), and is Sweden’s fourth largest city (City of Uppsala, 2015a). The growth of the region is evident in the increased number of people moving to Uppsala, creating problems for firms when finding office space and apartments for new recruitments (Stockholm Chamber of Commerce, 2012:7; Stockholm Chamber of Commerce, 2015:6). The location of Uppsala is less than one hour with train from the capital Stockholm and 17 minutes from Sweden’s international airport Arlanda (City of Uppsala, 2015a). The Stockholm capital region, including both Stockholm and Uppsala counties, generates approximately 30 per cent of Sweden’s national economic output (Parilla et al., 2015). Uppsala’s business climate is fostered by entrepreneurship and a strong academic environment, hosting about 40 000 students (City of Uppsala, 2015a). In 2015 Uppsala Innovation Centre (UIC), was ranked as the world’s 10th leading business incubator (UIC, 2016), where in total there are close to 19 000 firms active in the county (City of Uppsala, 2015a).

Sweden’s capital region has an advantage in terms of an advanced workforce, innovative firms and a modern infrastructure (Parilla et al., 2015.). According to a report by Brookings the region’s workforce is one of the most educated in the world and possesses knowledge and expertise, which is critical for talent-driven industries such as high-tech companies (Ibid.). However, in the same report it is also stated that there is a negative trend in the number of talent decreasing, which is threatening the future success of firms. According to Stockholm Chamber of Commerce (2015a) both SMEs and MNCs are depending on talent to both keep and grow their current market positions. Therefore the knowledge, expertise and capacities embedded in the human capital are crucial for driving economic growth (Parilla et al., 2015). The success of knowledge-intensive firms is closely connected to the local conditions whereby the combination of: talented individuals, university research and development, and other knowledge-intensive firms in the same location represents possibility of growth (Sanandaji & Rankka, 2015).
5.0 The journey of the clean-tech cases

In the following chapter the results of the multiple-case study are presented, in order to provide an overview of the cases in terms of the location decision of the firms and what the role of talent have had in their decisions.

5.1 The case of Airwatergreen

Airwatergreen is the case of a successful clean-tech firm with the vision of condensing water from air-moisture in order to help and solve the water crisis in the world (Johansson, 2011). Airwatergreen was founded in Uppsala in 2009 (Bolagsverket, 2015a), and consist of seven employees. The two founders Jonas Wamstad and Fredrik Edström met as engineering students through common friends at Uppsala University. The firm's pioneering invention of heat condensation makes it possible to condense moisture to water in any temperature, by only using half of the energy than the traditional ways of humidity control (Airwatergreen, 2016). The firm has received funds from organisations such as Vinn nu, due to the business concept being established on research and development (Energinyheter, 2010). According to Airwatergreen’s annual report 2015 the firm has received government funds of approximately 1,88 million SEK in total, in order to advance their unique technology and adapt it to different industrial applications (Bolagsverket, 2015a). The founder and CEO, Wamstad (2016) argues that even though the founders are dreamers and want to solve the water issues in the world they decided to change focus to the dehumidification processes. At present, the firm focus at the chosen segment of churches and has become a supplier of dehumidifying churches (Edén, 2014; Nyteknik, 2016). Airwatergreen’s main customers are located in the region of Skåne and according to Wamstad (2016) the most strategically optimal location for the head office would be there. However, since both the majority of Airwatergreen’s employees and both of the founders live in Uppsala the head office is still located there.

In regards to the location of the firm, Wamstad (2016) describes Uppsala as a city with an attractive labour market pool “There are competent people, like, young, new, fresh, creative people, I think that’s Uppsala’s strongest strength as are the academics that live here [...]”. Airwatergreen’s products require highly skilled engineers with special criteria’s, since it is a new type of machinery. Wamstad (2016) argues that he is confident that the firm can easily find sharp individuals in Uppsala by stating, “We can go outside of our door and at once find five people that are super sharp”. The founder
states that he does not believe it is as simple to do so in Stockholm, as there are a larger number of firms present there. He therefore believes that the odds are better in Uppsala for faster finding skilled people. Wamstad (2016) argues that “In some local areas here in the city you can just hold up a sign saying ‘I need an engineer’, where in Stockholm can you do that?”. The founder states that firms can find sellers in any city in Sweden, but that skilled engineers are not as easily found and Airwatergreen feels safe with the work pool of engineers in the city. This is especially important for Airwatergreen since the future developments of their technique requires highly skilled engineers. Wamstad (2016) also believes that due to Uppsala’s small size it is easier to live there and to get around faster, rather than in Stockholm, but at the same time Uppsala is not too small or too large. According to Wamstad (2016) "Uppsala is a melting pot, you meet people here and there and sometimes it just clicks if you have the same interests and then you just sit and talk about these subjects [...]". This was the case for the establishment of Airwatergreen, the two founders meet in Uppsala and found common ground in their ideas and started the firm as business partners.

Additionally, Wamstad (2016) believes that Uppsala is a city with great history and culture and also with a strategically good position, especially due to the closeness to Arlanda and Stockholm, which is an advantage of the city. This was of importance since the establishment of Airwatergreen required a great deal of traveling in the beginning when the firm was new in order to attract investors in different cities, especially to Stockholm. When it comes to the location of the office it was according to Wamstad (2016) relatively easy for Airwatergreen to find a new office with the help of the real estate organisation Vasakronan, since they wanted Airwatergreen to be present in their offices due to the good PR the firm had been receiving in media. In the firm’s initial start-up phase it was located in Uppsala Science Park in Uppsala, which is an industry park in close distance to Uppsala University, hosting companies within research areas such as biomedicine and IT (Vasakronan AB, 2016). In Uppsala Science Park Airwatergreen operated independently since the other firms were specialized in bio-tech and not clean-tech. Later, the firm moved to another location as the offices did not match their needs and as the founders did not want to be viewed as a start-up firm. After the move, Airwatergreen expanded into two additional segments: the water- and sewer industry and the district heating industry.
The founder and CEO Wamstad (2016) claims that Airwatergreen is the top firm in the industry and due to this the firm does not feel a need to cooperate with other firms when it comes to technical developments. Airwatergreen develops new types of technologies, causing the founders to be highly guarded in regards to cooperating with other firms. The main areas of R&D are secured within the firm itself. With this attitude the firm has become a pioneer within the business area of humidity control and has become one of Sweden’s most successful high-tech firms (Alpman, 2016; Almi; 2016; Talentum Events, 2016). Airwatergreen’s technology has during 2016 received a patent from the United States Patent and Trademark Office (UIC, 2016a), as well as from the Chinese Patent Office (UIC, 2016b), this will make it possible for the firm to expand their business internationally.

5.2 The case of Greensway
Greensway is the case of an environmental consulting firm, consisting of six employees, founded in 2013 by Olof Widenfalk and his wife Lina Widenfalk (Widenfalk, 2016). The firm offers services specialized within developing environmental solutions for conservation and environmental planning, to companies and authorities in need of environmental certifications or environmental friendly strategies (Bolagsverket, 2015b). Widenfalk (2016) has lived in Uppsala for almost 20 years and has a PhD within ecology from SLU. Before founding Greensway, Widenfalk worked at the Forestry Research Institute of Sweden (Skogforsk) for almost 10 years. An extended part of his work at Skogforsk concerned larger research programs in collaboration with SLU (Widenfalk, 2014; Widenfalk, 2016). During Widenfalk’s (2016) time at Skogforsk he noticed several gaps between the academic research and the industry. Widenfalk (2016) states: “I believe that one of the main problems is that many researchers presume that the decision-makers of firms make bad decisions, because they are not scientifically rooted enough. But on the other hand, the decision-makers of firms have to make fast decisions every day and every week, when it comes to these kind of complex questions”. The establishment of Greensway was according to Widenfalk (2016) based on the incentive to fill the gap between industry and academia within the green sector, in terms of building a bridge between the two parts using a kind of "best practice" to solve complex questions.

In the end of 2014 the founder of Greensway decided to expand the business and registered the firm as a private limited liability company (Bolagsverket, 2015b), and simultaneously initiated a recruitment process (Widenfalk, 2016). At that time the firm
was located at the founder's home. While recruiting new consultants to the company they also moved to their current location, renting an office space for an attractive price at Uppsala Innovation Centre (UIC) which is a centre for start-ups located next to SLU in Uppsala (UIC, 2016). In terms of the recruitment, the firm received over 100 applicants per available position that they posted, with the majority of the applicants being highly qualified. For example, almost all of the applicants for the senior consultancy position had a PhD. However, when looking deeper into the applicants’ resumes the firm was quickly down to only ten people with the right competence. One main criterion Greensway searched for in their employees, except higher education, was a business-mindset. The importance of incorporating a business-mindset was considered by Widenfalk (2016) as a special competence, since a large pool of workers within the field seems to lack the interest of business. All of the recruited staff moved to Uppsala from other cities in Sweden. One of the employees had earlier worked at a large consultancy firm, which Greensway considered as a merit since the employee had an extensive network besides great competence. According to Widenfalk (2016) the issue of recruitment is not something that Greensway consider to have an impact on their choice of location. The founder argues that even though other firms might complain about the lack of labour it is not something that Greensway has experienced: “We do not have to search for long to find these specialized individuals” (Widenfalk, 2016).

In regards to the firm’s location, Widenfalk’s (2016) main purpose for the current location is the need to keep the firm close to SLU and the R&D activities within the area of ecology. According to Widenfalk (2016) “We looked at office space in the city that was similar to this one, but here we are where things happen”. Widenfalk (2016) believes that the firm is strategically located. Greensway profiles itself as a firm that works between academic research and the industry, connecting research with business solutions (Greensway, 2016). Thus, the closeness to SLU is important for the firm since it works as an enabler for Greensway to keep a high quality of the services and products they offer. The connection to the university has resulted in several collaborations, whereby Greensway has initiated workshops at the university where researchers, the industry and government are invited to discuss environmental issues.

According to Widenfalk (2016) it is easy to get lecturers to the workshops, as Greensway is located around the corner to SLU. SLU is also one of the firm’s largest customers and the university occasionally require Greensway’s knowledge within certain areas of research projects. One of the employees at Greensway regularly works
at SLU in different projects. Widenfalk believes that an additional advantage of the geographical location of the firm is that it is easy to access in form of travelling. According to Widenfalk (2016) Greensway has customers around the entire country, with several being located in Uppsala and Stockholm. The consultants are often working out in the field and since the customers can be located anywhere in Sweden traveling is often required. Greensway has an ambiguous environmental policy, where the consultants mostly travel by cars. However, if it is longer routes the plane from Arlanda Airport is an easier and faster way to get to and from remote locations (Widenfalk, 2016).

Initially, when the founder started the consultancy firm he made contact with old friends from his studies at the university, and according to Widenfalk (2016) "Consultancy is built on contacts". The founder believes that the old contacts have been very important for the firm’s success. Greensway collaborates with other private consultants at Uppsala Innovation Centre, who also rents office in the same corridor, making the personal network of the other consultants place an important role when it comes to finding new clients according to Widenfalk (2016). The founder believes that it is probably easier to stay in contact with friends and colleagues in Uppsala than for example in Stockholm. However, the lack of the business-mindset is still an issue in Uppsala, which Widenfalk (2016) believes comes more natural for people in Stockholm. Uppsala offers high qualifications and a good network, but the city struggles with a slow phased mindset towards business. The founder occasionally feels tempted of setting up an office in the capital, since there are more industrial companies and technical consultants located there (Widenfalk, 2016). Further, Widenfalk (2016) argues that the contacts that would enable larger sales might also be available in Stockholm. If the firm would expand the founder wants to keep the head office in Uppsala and smaller offices at other locations, where the Uppsala office would work as the connection to the R&D at SLU. However, today the firm is more oriented towards becoming international, since there is a high demand for services in central Europe and especially Germany (Widenfalk, 2016).
5.3 The case of Solibro

Solibro is the case of a world-renowned manufacturer of CIGS thin-film modules, CIGS meaning the material for solar cells by the use of a thin-film technology (Solibro, 2016). The firm was founded in Uppsala in 2003 by adjunct professor Lars Stolt and his three colleagues, who had been researching solar cells together at Uppsala University’s Ångström Solar Centre since the 1980’s (Ljunggren, 2016; Uppsala University, 2016a). The firm was initially a spin-off from the research group and in 2003 different investors bought shares in the company (Ljunggren, 2016; Uppsala University, 2016a). In 2006 Solibro and the German firm Q-Cells partnered in a joint venture, as a result of Solibro wanting to expand (Solibro-solar, 2013). According to Ljunggren (2016) due to the German acquisition the firm’s manufacturing plants were set up in Germany, while the R&D stayed in Uppsala. This meant that Solibro in Uppsala went from being the engine for the solar cell technique to a pure R&D-centre.

In 2012 Q-Cells faced economical issues and presented a bankruptcy petition, and as a result the joint venture ended (Berglund, 2012). Consequently, a Chinese corporate group named Hanergy acquired Solibro and the firm became a subsidiary within the Hanergy group (Lundberg, 2014; Uppsala University, 2016a). When Hanergy acquired the firm, the Chinese revealed great respect for the knowledge that was incorporated into Solibro. According to Ljunggren (2016) the Chinese realize that "They could not just close down the business in Uppsala and send the stuff over due to the potential consequence of the people not coming with them" and continued by stating that "They are smart, they have some kind of respect for knowledge". This was especially evident in the way the Chinese staff treated one of the founders, Lars Stolt, who they met with great respect. Ljunggren (2016) believed that one of the most important reasons of Hanergy allowing Solibro to stay in Uppsala was because the manufacturing was located in Germany; hence there was no need to obtain a manufacturing facility in the city. However, there were discussions about moving Solibro to other locations in Sweden that could offer premises and land. According to Ljunggren (2016) Uppsala is not enthusiastic enough when it comes to attracting new establishments of firms and if the manufacturing had been established in Sweden he is quite certain that it would not have been in Uppsala. Ljunggren (2016) perceives that there has been a lack of support to new business establishments within Uppsala in form of slow processes.

When it comes to the firm’s location, Solibro is positioned in Green Innovation Park, an industry park in Uppsala where both SLU and Uppsala University are active (Green
Innovation Park, 2016). One of the main reasons for the firm still being located in Uppsala is that the founders have strong links to the city and to Uppsala University (Ljunggren, 2016). The main founder of Solibro Lars Stolt is the technical director at Solibro in Germany and still an adjunct professor at Uppsala University at the department of engineering science, specializing in solid state electronics (Uppsala University, 2016b). His wife Marika Edoff is one of the co-founders of Solibro and she also works as a professor at Uppsala University in solid-state electronics (Uppsala University, 2016c). Solibro has from the start of the firm had 2-5 employees active in a special research group for solar cells at Uppsala University. This in turn has established personal connections between the employees at Solibro and the research group at the university. According to Mats Ljunggren, quoted in Karlsson-Ottosson (2009) “The research and development within solar cells has a strong connection to Uppsala and the people that are present there”. In addition, Solibro makes use of the university’s premises where the firm occasionally rent laboratories and equipment for smaller tests for their R&D processes. As a result Solibro is dependent on Uppsala University in order to test specific parts of their research. (Ljunggren, 2016) According to Lars Stolt, the closeness to the university is of great importance for the firm (Uppsala University, 2016a).

In the industry park, the firm has also collaborated with The Swedish Institute of Agricultural and Environmental Engineering (JTI), which is an industrial research institute engaged in R&D and information in the areas of agricultural engineering and environmental technology (JTI, 2016). The collaboration has been based on discussions of different solar cells solutions for agriculture. One of the firm’s most reliant suppliers of precision engineering is located outside of GIP, in Uppsala. Other than the collaboration with Uppsala University and JTI the firm does not cooperate with any firm in the park, neither do they have any close competitors there. (Ljunggren, 2016)

The majority of the 30 employees at Solibro live in Uppsala and the remaining in Stockholm (Bolagsverket, 2015c; Ljunggren, 2016). The work at the firm is divided into shifts, between 6 AM to 12 PM and consequently it can be difficult for employees who live far away to commute to work at these hours, this is taken into consideration during recruitments. If a new employee lives in Uppsala then this will have positive impact on the recruitment process (Ljunggren, 2016). According to Ljunggren (2016) the location is of importance for the firm during recruitments, since many knowledgeable people are present in the area. Part of the firm’s recruitments have been the result of the collaboration between the Solibro and Uppsala University, in terms of the R&D group at
the university, where approximately 30 per cent of the employees are former students at Uppsala University. The fact that the two co-founders and professors at Uppsala University, Lars Stolt and Marika Edoff, are married also enables discussions about potential new recruits from the university in informal forums between the couple. According to Ljunggren (2016) the collaboration enables the firm to retain some highly intelligent and driven individuals. This results in lower recruitment costs and Solibro can headhunt employees that suit the company’s preferences. Consequently, there is a need for people with higher education within the firm. A high proportion of the nearly 30 per cent of the employees at Solibro have a PhD or are engineers. According to Ljunggren (2016) the employees need to have a certain competence to be able to work with the specific R&D at the firm. Ljunggren (2016) hesitate about the firm moving to another city, because of the uncertainty to be able to fill the need for special knowledge in another location, and the issue of them probably losing their current employees. In regards to a potentially new employee he mentions that they have to be open for personal development, however the focus is also on personal traits, “The right person can learn specific things later” (Ljunggren, 2016) as long as the motivation for taking the job is of the right nature.

In terms of the geographical location of the firm the closeness to Arlanda Airport has according to Ljunggren (2016) been an advantage for the firm since travelling has been a crucial part of the job for most of the employees. According to the CEO the most beneficial with being located in Uppsala is the closeness to Uppsala University, where the founders have built their research. This in turn has functioned as an engine, a possibility, for recruitment, other forms of exchanges and collaborations. Ljunggren (2016) believes that Uppsala is the perfect size for a city, not too big nor too small “I myself lived in Stockholm before, but it is easier to live in Uppsala” continuing by stating that “It is big enough for some city buzz and you do not have sit in long queues to work instead you can ride your bicycle to work and it is close to the nature” (Ljunggren, 2016). This is something that the firm also believes to have a positive impact on the employees.
6.0 Analysis

In this chapter the multiple-case study is analysed by the use of the analytical framework (see figure 1). The analytical framework has been conceptualized from the extensive literature review and is based on the identified factors of firm location decision and the role of talent. The cases are first analysed separately and there after in comparison to each other in a cross-case analysis.

6.1 The case of Airwatergreen

In the following section the analytical framework is applied to the case of Airwatergreen in order to analyse what the role of talent has been in the identified firm location factors of: clustering, soft and hard factors, and personal networks.

6.1.1 Clustering

According to Audretsch et al. (2005) firms' locate within close proximity of universities in order to benefit from knowledge-spillovers from research and the human capital in the area, this can be viewed as a firm's location strategy. Dumais et al. (1997), Florida (2003) and Scott (2006) agree with this view and believe that it is especially applicable for high-tech industries. However, the case of Airwatergreen contradicts these statements since it appears as if clustering was not of importance, as the firm later moved out of the cluster at Uppsala Science Park. Nevertheless, Almazan et al. (2007) provides Microsoft as an example of a successful high-tech firm that initially located away from industry clusters. This could be the case for Airwatergreen as well since the firm has been recognized as one of Sweden's most successful high-tech firms.

The literature review revealed that knowledge-spillover is one of the main benefits of clustering (Audretsch et al., 2005; Bontje et al., 2011; Feldman, 2000; Porter, 1998). Florida (2003) argues that clusters are helpful when drawing knowledge out of creative people, which in turn generate innovation. This does however not apply to Airwatergreen, since the firm did not cooperate with other firms when it was located in Uppsala Science Park. The lack of cooperation was mainly due to the other firms being present within the fields of life-science and bio-tech, while Airwatergreen was operating in the clean-tech industry. Thus, the firm did not believe it could gain anything from cooperating with the other firms or draw knowledge from the people within the cluster. This is an important issue to consider when investigating the role of talent and the clustering effect in terms of Airwatergreen, since the dominant reason of knowledge-spillover was not obvious in the firm’s case. Nevertheless, Airwatergreen did not appear
to be negatively affected by this since the firm believed that creative people are present in Uppsala as a whole and not only in the clusters. This is in accordance with the arguments of Li et al. (2016) regarding that factors such as human capital can be as important to firm location decision as clustering. This appears to be the case for Airwatergreen, since they did not view clustering as beneficial.

According to Almazan et al. (2007) and Glaeser and Kohlhase (2004) there has been a shift towards close proximity to skilled people as a central part of firm location decision. This could be linked to Airwatergreen since Wamstad (2016) continued by arguing “In some local areas here in the city you can just hold up a sign saying 'I need an engineer', where in Stockholm can you do that?”. This is something that the founder believed to be specifically linked to local areas in Uppsala and not specifically in cluster environments. Thereby, it could be claimed that Airwatergreen does not emphasize the role of talent within clusters, as the firm regards talent as being available outside of clusters as well. If the firm would not have believed that talent exists outside of clusters, then it would perhaps had viewed the effects of clustering differently.

6.1.2 Soft and hard factors
Wamstad (2016) believes that Uppsala is a city with great history and culture, while at the same time being small in comparison to Stockholm, and the distance between people is shorter in Uppsala. This statement goes in line with the view of Bontje et al. (2011) and Glaeser (2005) and Murphy et al. (2015) in regards to locations soft factors, such as the traits of the work environment and the cultural aspects of the location and can be identified as amenities to attract a suitable workforce. In contrast to soft factors, hard factors for firms can for example be accessible office space and attractive rent levels (Bontje et al., 2011; Florida, 2002; Murphy et al., 2015). This is apparent in Airwatergreen’s case since the founder believed that it was relatively easy for the firm to find new office space in Uppsala, when the firm moved from their old office in Uppsala Science Park. This could be linked to the size of Uppsala, as Wamstad (2016) claimed that the city is not too small or too large. The closeness to an international airport is another hard factor that Bontje et al. (2011) argues is of importance when choosing a location, which can be connected to Airwatergreen. According to Wamstad (2016) Uppsala is strategically positioned with the closeness to Arlanda Airport being an advantage when it comes to being located in Uppsala, as the work of Airwatergreen requires travelling.
The availability of skilled labour can also be defined as a hard factor influencing the location decision of firms (Bontje et al., 2011; Murphy et al., 2015). This could be the case for Airwatergreen since Wamstad (2016) believed there to be a solid work pool of skilled engineers in Uppsala and continued by stating that firms' can easily find salespersons in any city. However, he also stated that this is not the case for skilled engineers. When it comes to the role of talent Wamstad (2016) believed that Uppsala offers a good labour market pool by arguing that “There are good, competent people, like, young, new, fresh, creative people, I think that it is Uppsala's strongest strength as are the academics that live here [...]”. Burnson (2015) believes that the concentration of talent is becoming of increased importance when firms choose locations. It could be argued to Airwatergreen believes that there is a concentration of talent in the city, since Wamstad (2016) stated “We can go outside our door and just find five people at once that are super sharp”.

According to, Jofre-Monseny et al. (2014) the location decision for firms in knowledge-intense industries can be motivated by the need for employees with industry-specific knowledge and therefore firms locate in environments that offer a pool of specialized workers. This appears to be the case of Airwatergreen since the firm is present within a knowledge-intense industry and the firm uses highly skilled engineers to develop their techniques. Further, this is in accordance with Porter and Heppelmann (2015) and their argument that the development of new technological advanced products and services demand new types of specialists and skills within firms. Additionally, Snieszka and Zykiene (2015) appear to agree with this statement since they argue that a skilled workforce aids in developing innovative businesses, resulting in creating competitive advantages. This could be argued to be a reason for Airwatergreen’s establishment in Uppsala, since it demonstrates the importance of the role of talent for their location decision in regards to hard factors.

When it comes to the role of talent in terms of soft or hard factors it could be argued that hard factors are of higher importance for the location decision of Airwatergreen, since the firm emphasise the availability of competent workforce in Uppsala and believes this to be an advantage of the city. As a result, the role of talent in the location decision in terms of hard factors are emphasised in Airwatergreen’s case.
6.1.3 Personal networks

According to Grabher (2004) personal networks can be defined as both personal and professional links and relations between people. These types of networks can according to Musterd and Gritsai (2012) and Turok (2004) emotionally connect people to certain places, as for example where they have studied. Consequently, this becomes of importance when deciding firm location (Ibid.). This is highly applicable to both of Airwatergreen’s founders, since they have studied at Uppsala University and also lived in the same dorm in the city. Wamstad (2016) stated that: “Uppsala is the melting pot, you meet people here and there and sometimes it just clicks if you have the same interests and then you just sit and talk about these subjects [...]”. This is how the two founders of Airwatergreen met, found common ground in their ideas, and initiated the firm as business partners. According to Ceci and Lubatti (2012) SMEs location decision can be based on the decision-makers personal networks, which is coherent for Airwatergreen. In Airwatergreen’s case the role of talent in personal networks and the firm’s location decision could be argue to be connected to the founders themselves. According to Turok (2004) knowledge-intensive firms in high-tech industries are argued to be more dependent on individuals’ skills in terms of creativity, ingenuity and talent. The founders are both two talented and skilled engineers who met in the melting pot of Uppsala and founded the clean-tech firm together. With this in mind, the role of talent of the location decision of Airwatergreen becomes highly important. Therefore, it could be argued that the two founders decided to establish the firm in Uppsala as a result of their own personal network with each other.

6.2 The case of Greensway

In the following section the analytical framework is applied to the case of Greensway in order to analyse what the role of talent has been in the identified firm location factors of: clustering, soft and hard factors, and personal networks.

6.2.1 Clustering

Greensway is located in close proximity to talent since the firm is present in a cluster environment at Uppsala Innovation Centre, close to SLU. Additionally, according to Chen and Yu (2008) a firm’s talent pool consists of and grows through the influence of universities and research institutions, and since Greensway is located at Uppsala Innovation Centre the firm is influenced by these factors. It could be argued that Greensway decided to locate near SLU in order to share and gain knowledge-spillovers within the R&D activities in the area. This goes in line with Audretsch et al. (2005) view
of knowledge-spillovers being defined as a firm location strategy on its own, due to the close proximity to universities in order to benefit from research and the human capital within the area. This can also be linked to the role of talent, and it can thereby be argued that Greensway’s location decision was influenced by the closeness to the knowledge within the university. Additionally, the close proximity to the university also resulted in several collaborations for Greensway and the interrelation within the cluster in terms of networks is something that Scott (2006) argues aids innovation and strengthens the cluster itself, which Greensway is a part of. This is evident in for example when the firm arranges workshops at SLU where researchers, the industry and government are invited to discuss environmental issues.

Audretsch et al. (2005) believes that activities within the cluster are enabled through personal contacts, and through the workshops that Greensway facilitated cooperation with SLU, the firm had the opportunity to strengthen their personal contacts with the different participants. As a result, the firm could create new collaborations and this is what Bontje et al. (2011) believes facilitates closer collaborations. Through the collaborations with SLU, the university has also become one of Greensway’s largest clients and requires the expertise of Greensway in different research projects. The collaborations could be argued to be strong since one of the firm’s employees regularly works as a consultant at the university. Dumais, et al., (1997) and Rotemberg and Saloner (2000) claim that intellectual spillover is more important than the close presence of suppliers and customers. However, this does not seem to apply to the case of Greensway, since the firm can access intellectual spillovers from SLU, while at the same time relying on SLU, since the university is one of their largest customers.

The presence in the cluster appears to be of importance for Greensway since the founder stated: “We looked at office space in the city that was similar to this one, but here we are where things happen”. In the same sense that Porter (1998) considers Silicon Valley as a location for the gathering of high-tech firms, the same could be applied to Greensway and SLU as they are both active within agriculture. By being located next to the university Greensway is close to the area where top research within ecology is produced, emphasizing the role of talent in this case. Thus, it could be assumed that Greensway located close to the universities in order to gain access to high quality research, which would goes in line with the arguments and study of Florida and Kenney (1994) of R&D firms strategically locating close to universities in order to benefit from their research. This could be linked to the statements of Chen and Yu (2008) regarding
that a talented pool of people consists and grows through the influence of universities and research institutions. Hence, Greensway is located closely to talent since the university can be argued to act as a pool consisting of talented people.

6.2.2 Soft and hard factors

Bontje et al. (2011) consider a locations work pool as a hard factor that can influence the location decision of firms. However, the importance of a work pool does not seem to apply to Greensway. Instead, all employees at Greensway were recruited consultants from outside of Uppsala (Widenfalk, 2016). When Greensway first started the recruitment process the first positions made public received over 100 applicants per available position. There were highly qualified applicants, for example for a senior consultancy position nearly all of the candidates had a PhD. Nevertheless, the firm was quickly down to only ten candidates with the right competence at the later stage of the process. According to Widenfalk (2016) the employees at Greensway need to have a special type of competence besides an academic degree, which is a business-mindset. Thereby, the recruited employees could be regarded as a pool of talent, since talent is defined as a small group of bright individuals that are intelligent with skills to deal with complex processes and tasks, while simultaneously being committed to contribute high achievements (Beechler & Woodward, 2009; Chambers et al., 1998). In addition, Widenfalk (2016) believes that all of their employees, except for the founder and his wife, have moved from other cities to Uppsala to work at the firm. This is contradicting to what Storper and Scott (2009) have indicated in their research, stating that firms locate to certain places where talented people are present. As a result, hard factors in the terms of available work pool have not proven to be of importance for Greenway’s case, since the firm does not recruit their talent specifically in Uppsala.

Infrastructure and the closeness to airports are according to Bontje et al. (2011) and Murphy et al. (2015) categorized as hard factors, which traditionally have been viewed as having a strong impact on the location decision of firms. These hard factors could have affected the location decision for Greensway, as their clients are present throughout Sweden. Thereby, the consultants spend a great deal of time in the field, requiring a lot of travelling. According to Widenfalk (2016) the geographical location of the firm, in terms of being present in Uppsala, works to their advantage as the consultants frequently travel. Occasionally, they travel by plane from Arlanda Airport to locations that are too time consuming to get to by car. In terms of soft factors, such as
closeness to nature, culture and other traits of the surrounding environment (Bontje et al., 2011; Murphy et al., 2015), Greensway did not seem to be affected by this in terms of their location decision, nor was it connected to the role of talent. In the case of Greensway it appears as neither hard nor soft factors impacted the location decision of the firm, neither did these factors emphasise any connection to the role of talent in the location decision of the firm.

6.2.3 Personal networks

According to Widenfalk (2016) “Consultancy is built on contacts” and when the founder first started the firm he resumed contact with friends from his previous studies at SLU. This goes in line with Musterd and Gritsai (2012) and Turok’s (2004) view on personal networks, where the location a person has studied have the ability to connect people to certain places. This is exemplified in the personal network of the founder of Greensway. In addition, Widenfalk (2016) believed that the success of the firm was to some extent reliant on his personal network. This confirms Ceci and Iubatti (2012) argument that SMEs are more likely to locate based on the personal network of the decision maker. According to Widenfalk (2016) Uppsala presents good opportunities for networking, however the founder believed that Stockholm probably obtains the right contacts needed for larger sales. Nevertheless, the firm is located in Uppsala and this makes the theory of Musterd and Gritsai (2012) applicable to Greensway’s location decision, since they argue that individuals are drawn to locations where they already have an established network.

Greensway collaborates with other consultants that are positioned in the same building as the company. This is important for the firm, especially when it comes to finding new clients. Further, the personal contacts of the employees are according to Widenfalk (2016) considered a merit. This is consistent with Turok's beliefs (2004) that emphasizes the impact of personal networks as being stronger for smaller firms, as the success of SMEs are argued to be more reliant on knowledge-spillovers and face-to-face relationships. Additionally, according to Porter and Heppelmann (2015) the development of technological advanced products and services demand new types of specialists and skills within firms (Porter & Heppelmann, 2015), where higher knowledge is a scarce resource (Audretsch et al., 2005). Based on the arguments by Widenfalk it appears as personal networks, in terms of the close access to skilled people, has had a connection to the firm’s success. This is also in accordance with Snieska and Zykiene (2015) claims that access to a skilled workforce assist in developing innovative
businesses, adding value to firms and resulting in a competitive advantage. Therefore, the personal network seems to add value to the firm by enabling access to talent and knowledge through interactions with old contacts and new clients. This can be argued to illustrate the role of talent in terms of personal networks in the case of Greensway.

6.3 The case of Solibro

In the following section the analytical framework is applied to the case of Solibro in order to analyse what the role of talent has been in the identified firm location factors of: clustering, soft and hard factors, and personal networks.

6.3.1 Clustering

Florida (2003) argues that knowledge sourcing is an important motivation for location preferences, where firms that rapidly mobilize talent gain a great source of competitive advantage. This could be the reason to why Hanergy let Solibro stay in the same location when they acquired the firm, believing that Solibro would benefit from being close to the talent in the area. According to Ljunggren (2016) the employees at Solibro are directly connected to the city where the firm is located and the CEO does not believe that the staff would move with the company if the it would relocate to another city. When Solibro was acquired the Chinese displayed a great deal of respect for the knowledge incorporated into Solibro and seemed to realize that “They could not just close down the business in Uppsala and send the stuff over due to the potential consequence of the people not coming with them” (Ljunggren, 2016). This was especially evident in the respect they had in regards to the founder, Lars Stolt. This could be linked to Turok’s (2004) arguments concerning knowledge-intensive firms where the success is argued to be dependent on the employee's skills in terms of creativity, ingenuity and talent. Ljunggren (2016) states that he is uncertain if the specific need for special knowledge can be found in another location: “The research and development within solar cells has a strong connection to Uppsala, and the people that are present there.” – Mats Ljunggren (quoted in Karlsson-Ottoson, 2009). Dumais et al. (1997) and Rotemberg and Saloner (2000) claim that intellectual spillovers are more important than for example the close presence of suppliers and customers. This could then be argued to be the case for Solibro. The intellectual spillover could be argued to be from the talent in the area since the firm is located near the university. In accordance with Glaeser and Kohlhase (2004, p. 1) we live in: “[…] a world where it is essentially free to move goods, but expensive to move people”. Therefore, the location decision of Solibro, when acquired by Hanergy, could be viewed as a strategic choice in order to not lose the talent and
competitiveness of the firm. This is also in accordance with Erramilli et al. (1997) who argues that MNCs locate based on strategic competitiveness. By this statement, the role of talent for the location decision appears to have been of importance for Solibro, and Hanergy did also appear to believe so since they did not relocate the R&D part of the firm abroad just like they did with the manufacturing part.

According to Ljunggren (2016) Solibro makes use of Uppsala University’s premises, by occasionally renting laboratories and equipment for smaller tests during R&D processes. As a result, Solibro is dependent on Uppsala University in order to test parts of their research. The firm also collaborate with a research group within thin film solar cells at the university, whereby 2-5 employees of Solibro are active in the research, and the research group could be argued to be a source for making use of talent. This could confirm Audretsch et al. (2005) arguments regarding knowledge-spillovers as a firm location strategy, due to firms locating with a close proximity to the university to benefit from research. Further, the founders of the firm have also been active as professors at Uppsala University and the process of hiring new staff has close connection to Uppsala University, which has enabled the firm to headhunt skilled and educated students. This is in accordance with Rosenthal and Strange (2001), who claimed that agglomeration is a result of the importance of skilled labour market pooling for firms.

Further, according to Jo and Lee (2012) the choice of location is geographically bounded where the knowledge of a firm’s surrounding co-located competitors play an important role. However, according to Ljunggren (2016) Solibro does not collaborate with any other firm within the cluster, neither do they have any close competitors. The only collaboration has been with JTI, regarding discussions of different solar cells solutions for agriculture. This could thereby in Solibro’s case be contradicting to the arguments of Jo and Lee (2012). It could then be argued that the main connection between the role of talent in terms of clustering in the case of Solibro is the fact that Hanergy did not move the firm because they wanted to keep it close to talent.

6.3.2 Soft and hard factors

Ljunggren (2016) believes that one of the most beneficial features of being located in Uppsala is the size of the city, since it is neither too large nor too small. According to Ljunggren (2016) Uppsala is close to nature, it is easy to transport where you can bicycle everywhere and you do not have to commute for long hours to get to and from work. The majority of the firm’s employees also live in Uppsala, and Ljunggren (2016)
believes the mentioned factors have a positive impact on the people who choose to work at the company. This confirms soft factors in terms of amenities, such as the closeness to nature and using a high quality of life as an argument for attracting employees (Bontje et al., 2011; Curran et al. 2016; Murphy et al., 2015). Amenities in turn can be viewed as a way of attracting the right type of employees, by offering a certain quality of life (Murphy et al. 2015; Lynn & O’Gorman, 2016). Therefore, a possible link could be made between the features of Uppsala and the firm’s strategy of attracting and withholding the right type of talented employees.

According to Bontje et al. (2011) and Murphy et al. (2015) hard factors can be defined as the availability of skilled labour, which can influence the location decision of firms. Jofre-Monseny et al. (2014) agree with this view and argue that the location decisions of firms in knowledge-intensive industries can be influenced by the need of employees with industry-specific knowledge, due to this firms locate to environments that can offer a specialized work pool. This could be connected to Solibro where almost all employees either have a PhD or are engineers, and the majority is recruited from Uppsala University. According to Ljunggren (2016) there is a need for higher education, with a certain competence to be able to work within Solibro. It appears as Solibro can find these competent people nearby in Uppsala. According to Grabher (2004, p. 103) “Knowledge, it seems, has become magic”, this could be true for Solibro’s decision of location. Based on the above mentioned arguments, it appeared as if talent was an important factor for Solibro since the firm rely on highly educated and skilled employees who inhabit a certain kind of competence. Therefore, the location of the firm could possibly be linked to the pool of skilled labour that the firm can easily access in the city. The location decision of Solibro, when acquired by Hanergy, could therefore be viewed as a strategic choice in order to not lose the talent and thereby the competitiveness of the firm. This is also in accordance with Erramilli et al. (1997) who argues that MNCs locate based on strategic competitiveness. In conclusion, the link to the role of talent for the firm’s location decision in terms of hard factors appeared to be superior to the link of the role of talent in soft factors.

6.3.3 Personal networks
According to Erramilli et al. (1997), Grabher (2004) and Ceci and Iubatti (2012) personal networks, meaning the link between people, have an effect on firm location decision. The fact that four professors at Uppsala University, who had been doing research together within solar cells since the 1980’s, founded Solibro could confirm the
theory of personal networks and its impact on the firm in the start-up phase. Solibro has throughout its establishment had 2-5 employees present as researchers in a special research group at Uppsala University. Thereby, personal connections have been made between the staff of Solibro and the research group at the university. This has enabled the firm to recruit directly from the university, and according to Ljunggren (2016) the fact that the two professors, and co-founders, are married could possibly also enable discussions about potential new recruits in informal forums between the couple. Hence it seems, as some of the recruitments could have been the result of the personal network of the firm’s founders and the employees in the research group. According to Porter and Heppelmann (2015) due to the need for special expertise and skills firms move to certain locations in order to find the right type of talent. Several of the employees have been headhunted directly from Uppsala University, with approximately 30 per cent being former students of the university. This has according to Ljunggren (2016) enabled retaining employees that are highly intelligent and driven. The recruitment process of new employees at Solibro seems to have been done fairly easy and the firm refers to the location being important in terms of the recruitment of knowledgeable people. According to Erramilli et al. (1997) MNCs location decision are usually based on strategic competitiveness, which could be applied to Solibro as the firm seem to locate close to talent as a competitive strategy.

6.4 Overview of the main findings for each case

The main findings from the analysis of each case are presented in the following table in order to give an overview of what the role of talent for the location decision in terms of each of the identified firm location factors were in of the three cases. Further, the table also presents the main focus of the cross-case analysis in regards to the role of talent in terms of each location decision factor.
6.5 Cross-case analysis

In the following section the multiple-cases of Airwatergreen, Greensway and Solibro are compared in order to investigate the role of talent in terms of the firms’ location decision. The analytical framework has been applied to the cross-case analysis in order to analyse the multiple-cases by the same means. The main findings of each case as presented in table 4 will lay the ground for the cross-case analysis.

6.5.1 Clustering

The role of talent in terms of clustering appears to have affected Greensway and Solibro through the benefits of knowledge-spillovers as they are located near the universities in the clusters. This is coherent with the views of Florida (2003) and Scott (2006) who argue that clustering is a widely recognized factor when it comes to firms location decision, especially for high-tech firms. For example, Greensway organizes workshops together with SLU, and Solibro both collaborates and has several employees working with a research team located in Uppsala University’s facilities. Greensway consciously located near SLU in order to share and gain knowledge within the R&D activities, and the same could be stated regarding Solibro and the research team at Uppsala University. For Solibro, the connection with the university also enabled direct recruitment of talented individuals. Additionally, Ljunggren (2016) seemed to believe that Hanergy did

<table>
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<tr>
<th>Factors</th>
<th>Main findings of Airwatergreen</th>
<th>Main findings of Greensway</th>
<th>Main findings of Solibro</th>
</tr>
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<tbody>
<tr>
<td>The role of talent in clustering</td>
<td>Not emphasised. The firm does not acknowledge clustering as beneficial since the founder believes that talent is available in Uppsala as a whole and not specifically in a cluster environment.</td>
<td>Emphasised. The firm appears to have consciously located to a cluster environment in order to be close to SLU and the R&amp;D activities in the area, in order to share and gain knowledge through different types of collaborations. Thereby, the role of talent is acknowledged.</td>
<td>Emphasised. The firm is located in a cluster and has since the establishment cooperated closely with Uppsala University, where the firm has been active in R&amp;D activities and been able to directly headhunt talent from the university.</td>
</tr>
<tr>
<td>The role of talent in soft and hard factors</td>
<td>Emphasised for hard factors, especially in terms of skilled labour. The founder argues that competent labour, such as engineers, can easily be found in Uppsala and perceives it as the city’s main strength. Thus, the role of talent in terms of hard factors appears to be prominent.</td>
<td>Neither soft nor hard factors seem to have been emphasised in the firm’s location decision. The founder claims that talent is available all around Sweden, and none of the employees has been recruited from Uppsala. Therefore, it appears as the role of talent is not emphasized in terms of hard and soft factors.</td>
<td>Partly emphasised in terms of soft factors, where the CEO claims that the amenities offered in Uppsala has a positive effect when recruiting employees. Manly emphasised in hard factors, specifically in regards to the availability of a skilled workforce, as revealed in Hanergy not relocating Solibro in order to keep the firm close to talent.</td>
</tr>
<tr>
<td>The role of talent in personal networks</td>
<td>It appears as the founders themselves represent the role of talent, both being skilled engineers. Whereby the personal network of the founders brought them together, and resulted in the establishment of the firm.</td>
<td>Evident in the founder’s own personal network, which seems to have enabled access to knowledge and expertise. The founder claims that the success of the firm is connected to his personal network.</td>
<td>Emphasised in the founders’ personal networks, where their research together resulted in the establishment of Solibro. Further, through the connection to Uppsala University the firm has been able to recruit highly intelligent and driven employees. Thereby proving the role of talent.</td>
</tr>
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**Table 4: Overview of the main findings in each case**
not relocate Solibro due to the people present in Uppsala by stating “They could not just close down the business in Uppsala and send the stuff over due to the potential consequence of the people not coming with them”. The CEO of Solibro believed that the firm’s employees were directly connected to Uppsala and did not believe that the staff would relocate together with the firm if they would move to another city. Additionally, Widenfalk (2016) believed that Greensway is present “[...] where things happen”, meaning in the cluster itself. This could be an important implication of why the two firms are still present in clusters, which they appear to view as a competitive advantage. Thanks to the close interaction with the university and the research in the area, both of the firms are taking part of cutting edge research. With this in mind, being present in a cluster creates great advantages for the two firms in the sense of knowledge-spillovers in connection to talent.

However, there was no clear link between the role of talent and the clustering effect in the case of Airwatergreen. According to the founder, clustering did not provide any advantages to the firm. However, this could be due to the firm being located in a cluster that was not adapted to their needs, as they were the only clean-tech firm present there at that time. By this the firm could neither share nor gain the main benefits of the clustering effect. If Airwatergreen could have had the opportunity to cooperate with similar firms in the cluster than perhaps the firm would have stayed in the same location. Additionally, the founder of Airwatergreen believed that talent could be found in Uppsala as a whole and not specifically in a cluster environment. Nevertheless, as Almazan et al. (2007) has use Microsoft as an example of a successful firm that has located away from clusters and this is also evident for Airwatergreen. This could contradict researchers claiming that clusters are highly beneficial for the success of high-tech firms. As a result, the case of Airwatergreen is not comparable to the cases of Greensway and Solibro when it comes to the role of talent in clustering and the effect it has had on the firm’s location decision. An interesting aspect of clustering in terms of the multiple-case study is that in none of the cases did the firms collaborate with any other firm present in the same cluster. This information is contradicting to Jo and Lee (2012) who claim that the knowledge of co-located competitors impacts the location decision of firms.

6.5.2 Soft and hard factors
Bontje et al. (2011) and Murphy et al. (2015) state that the availability of skilled labour, as a hard factor, can influence the location decision of firms. This could be argued to be
the case for Airwatergreen and Solibro, who seemed to be most affected by this in their firm location decision. The founder of Airwatergreen appeared to strongly believe that there are talent present in Uppsala by stating "There are good, competent people, like, young, new, fresh, creative people, I think that’s Uppsala’s strongest strength as are the academics that live here [...]" and Ljunggren, CEO of Solibro, quoted in Karlsson-Ottosson (2009): “The research and development within solar cells has a strong connection to Uppsala and the people that are present there”. The majority of the employees at Solibro has a PhD or are engineers, whereby a great proportion is recruited from Uppsala University. Therefore, it seems as both of the cases value the existing talent in Uppsala and feel confident about finding the right type of competence in the city. Wamstad (2016) even went as far as to state “We can go outside our door and just find five people at once that are super sharp”. Thus, it is apparent that Wamstad (2016) believes that Uppsala could offer an extensive work pool of skilled people. This is in accordance with the statements of Jofre-Monseny, Marín-López and Viladecans-Marsal (2014) regarding firms location decision in knowledge-intensive industries as mainly motivated by the need of employees with industry-specific knowledge as a reason for firms locating in areas offering a pool of specialized workers. Both Airwatergreen and Solibro are present in a knowledge-intense industry, and the firms require highly skilled engineers to develop and create their solutions.

However, there was a distinct difference for the case of Greensway since the firm did not locate based on the work pool. Instead, Greensway recruited consultants from other parts of Sweden and not specifically from Uppsala. Instead, Widenfalk (2016) implied that the firm was not relying on the location in terms of recruiting, an rather the firm identified talent anywhere in Sweden. According to Widenfalk (2016) Greensway received over 100 applicants per available position when they made their initial recruitment process public. All of the applicants were highly qualified and for some positions the majority of applicants had a PhD, which makes it understandable why Widenfalk (2016) believed that “We do not have to search for long to find these specialized individuals”. The fact that the link between the location decision and talent seems to be non-existent in terms of Greensway, is contradicting the theories of Florida (2005) and Storper and Scott (2009) who claim that firms locate where talented people are present. As a result, the role of talent in the location decision of Greensway’s establishment in Uppsala could be argued to not be as evident as in the cases of Airwatergreen and Solibro.
The role of talent in terms of soft factors in the location decision did not provide any vital evidence in the multiple-case study since there were no clear links illustrating that talent was connected to soft factors. As a result, the role of talent was superior in hard factors, since the links to the role of talent of the firm location decision were more evident. This is contradicting to the view of researchers such as Storper and Scott (2009) arguing that soft factors are emerging as a determinant of firm location decision.

6.5.3 Personal networks
The role of talent in personal networks was to a certain extent evident in the multiple-case study. In the case of Greensway, Widenfalk (2016) stated, “Consultancy is built on contacts” and explained that networking is directly linked to the success of the firm. As consultants, the personal network is a requirement in terms of finding new customers and retaining old ones (Widenfalk, 2016). This was apparent in Widenfalk’s own initiative of re-establishing old contacts in the initial phase of the firm, and also since the founder considered the employee’s own extensive personal network as a merit. Therefore, part of the firm’s success could be argued to be connected to expertise and knowledge embedded in the personal network, and in that sense also to talent. This could be linked to the statements of Ceci and Iubatti (2012) of SMEs locating based on the personal network of the decision-maker. For Solibro, part of the firm’s recruitments was a direct result of the personal network of the founders’ and the employees in the research group, where highly skilled and competent students were recruited argued to represent the talent. This can be linked to the statements of Erramilli et al. (1997) arguing that MNCs locates based on strategic competitiveness, whereby it appeared as Hanergy let Solibro stay in their current location to benefit from the local talent.

In the cases of Airwatergreen it also appears to be a link between personal networks and the role of talent. Whereas the founder of Airwatergreen, Wamstad (2016) viewed Uppsala as a melting pot, where people have the opportunity to meet. It could be argued in Airwatergreen’s case that the firm views Uppsala as a location acting as a melting pot for talented people as the founder stated that they easily could walk outside their door and find super sharp people. Musterd and Gritsai (2012) and Turok (2004) argue that personal networks, such as where a person has studied, have the ability to connect people to certain places. This argument can be directly linked to all of the founders of Airwatergreen, Greensway and Solibro since they have all studied at one of the universities in Uppsala and thereafter established their businesses in the city. Firstly, in Airwatergreen’s case the two founders met as students and also lived in the same
student dorm. Secondly, in the case of Greensway the founder had studied at SLU. Finally, in the case of Solibro all of the four founders had been doing research together at Uppsala University before they established the firm. The role of talent in this sense is that the founders of the firms actually are talent themselves and their personal network and connection to Uppsala could have impacted the firms’ location decision.

6.6 Concluding the cross-case analysis

The cross-case analysis revealed results of the role of talent as intertwined in the different factors of firm location decision, which were: clustering, soft and hard factors and personal networks. The role of talent was clearly intertwined in terms of clustering in the cases of Greensway and Solibro, where it was considered as a way to benefit from knowledge-spillovers and retain skilled employees as a part of the location decision. However, this was not the case for Airwatergreen since the firm did not see the benefits of clustering and believed that talent could be found in other locations than specifically in clusters. In terms of soft and hard factors, the role of talent was mostly intertwined in the hard factor of skilled labour, which was emphasised in the case of Airwatergreen and Solibro. Both Airwatergreen and Solibro argued that Uppsala provides a skilled labour pool, which is not easily found in other locations. Nevertheless, in the case of Greensway there was no evident role of talent in neither soft nor hard factors. Finally, in personal networks the role of talent was considered to be intertwined in all of the three cases. Where, the personal networks of all founders resulted in them benefiting from knowledge and expertise and head hunting of talented employees. Additionally, the founders themselves can also be defined as talent due to them being highly skilled people that contribute to business achievements and their own personal networks affected all of the firms’ in the establishment phase of their location decision.

As a result, the need for highly educated and skilled people was apparent in the multiple-case study. The firms appeared to be searching for skilled individuals who inhabit a specific type of competence. According to Grabher (2004, p. 103) “Knowledge, it seems, has become magic”, where knowledge can be argued to be found in people and this seems to be the case for Airwatergreen, Greensway and Solibro. In all of the three cases there are evidence of the firms needing a specific type of knowledge and competence in order to stay competitive, whereby the firms’ do this by acquiring the right type of talent. In the following table the main findings of the multiple-case study are presented, which presents an overview of the role of talent in the firm location decision of this study.
<table>
<thead>
<tr>
<th>Factors</th>
<th>Main findings of the cross-case analysis</th>
</tr>
</thead>
<tbody>
<tr>
<td>The role of talent in clustering</td>
<td>Emphasised in the cases of Solibro and Greensway in terms of benefitting from knowledge-spillovers from research and collaborations with the universities. However, not evident in the case of Airwatergreen.</td>
</tr>
<tr>
<td>The role of talent in soft and hard factors</td>
<td>Emphasised in terms of hard factors, especially in the availability of skilled labour in both cases of Airwatergreen and Solibro. However, the role of talent was not evident in neither soft nor hard factors in the case of Greensway.</td>
</tr>
<tr>
<td>The role of talent in personal networks</td>
<td>Emphasised in all of three cases, where the knowledge and expertise incorporated in all of the founders’ personal networks have affected the firm location decision.</td>
</tr>
</tbody>
</table>

Table 5: The main findings of the cross-case analysis
7.0 Conclusion

Talent is a characteristic that has emerged in response to an increased demand for a skilled workforce, which is a result of the shift from an industrial-based to a knowledge-based economy. The need for talent can be viewed as a necessary requirement for firms in order to gain a competitive advantage. In this multiple-case study, the role of talent has appeared as a recurring topic in discussions regarding the firms’ location decision. As a result, the role of talent has appeared as an intertwined topic in the identified firm location factors: clustering, soft and hard factors, and personal networks. The role of talent in terms of clustering was connected to knowledge-spillovers and the ability to reap benefits from a talented workforce in order to aid the firms’ growth and success. In soft and hard factors, the most apparent connection to the role of talent was found in the hard factor representing the availability of a skilled workforce, although this was only evident in two of the cases. The role of talent in terms of personal networks was apparent in that the establishment of the firms can be directly linked to the founders’ own personal networks. Whereby, all of the founders had studied in Uppsala before establishing their firms in the city and since the founders can also be defined as talent since they are highly skilled and competent. Thereby, the role of talent is evident in all of the identified firm location decision factors. In conclusion, the multiple-case study revealed that the role of talent is intertwined in the firm location decision, as presented in the following figure.

Figure 2: The role of talent in firm location decision
8.0 Further research

The multiple-case study in this paper has been applied on clean-tech firms, thus the results might be industry specific and not applicable to other industries. Consequently, the role of talent in firm location decision needs to be further researched in the context of other industries in order to generalize the findings to additional industries. Further, the connection between the statements of earlier researchers regarding soft factors as having an increased effect on firm location decision also requires further studies, since the results in this multiple-case study were contradicting to those statements. In specific, the connection between the increased focus on soft factors and the link to talent in terms of attracting employees through local amenities would be a topic requiring further research. Lastly, from the analysis of the multiple-case study it appeared as the awareness of the decision-makers was lacking in regards to the extent talent actually affects them. As a result, additional research is necessary in order to investigate to what extent decision-makers of firms are aware of talent when deciding for a location.

9.0 Managerial implications for firm location decisions

Based on the multiple-case study several implications have been identified of importance for decision-makers to recognize when taking a firm location decision. Firstly, to create a good business environment for firms, there are several different factors that need to be considered. The location should act as a locus of economic growth for firms, in terms of providing incentives, if not then the location will presumably not serve as an alternative. These incentives are factors such as strong connections between academia and industry, representing an extensive network, and fulfilling the basic needs of housing and office space. Managers need to be aware of the interconnection of these factors, where the lack of one factor can have a negative influence on the other, and work actively to secure as many factors as possible.

Secondly, talent is argued by some researchers to be diminishing. The importance of talent, proven by the multiple-case study, implies that this should be taken into consideration. The connection between talent and success appeared strong in the multiple-case study; as a result the potential harm of losing the location benefit of talent might result in firms relocating to other cities. To be able to create an attractive business environment it also requires the location to attract and withhold talent in terms of bright, skilled and ambitious individuals.
Finally, since technology intensive firms are in the forefront of economic growth and development, it is crucial for locations to aim to serve advantages to these firms. In this multiple-case study, talent has proven to have an impact on firm location decision, where close collaborations between academia and industry have resulted in benefits for the firms to recruit talent. If firms retain talent either when they are studying in the universities or when they are about to enter the industry they have the opportunity to withhold talent before a potential distance is created between them, whereby close proximity is beneficial for firms operating in a competitive marketplace.
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Widenfalk, J. CEO of Airwatergreen, Uppsala, March 18, 2016, Airwatergreen, Uppsala, Personal interview.

Widenfalk, O. CEO of Greensway, Uppsala, April 1, 2016, Greensway, Uppsala. Personal interview.


Appendix 1 – The interview questions

**General questions**

1. How long have your firm been present here?
2. Why did you establish in this area?
   2a. What are the advantages and disadvantages of being established here?

**Soft factors**

3. What do you believe Uppsala has to offer that other cities cannot?
   3a. How did the city’s reputation impacted your choice of location?
   3b. How did the culture and history of the city impacted your choice of location?
   3c. How did the city’s offering of bars and restaurants affected your choice of location?

4. Do you or your employees live in Uppsala?
5. If Yes, was it easy to gain a residence in Uppsala?
   5a. If not, do you/them live close to Uppsala?

**Hard factors**

6. Has the closeness to Stockholm affected your decision to establish in Uppsala?
7. Do you and your employees travel a lot for work?
   7a. If yes, did the closeness to Arlanda impact the location choice?
   7b. Did the availability to trains impact the location choice?
8. Are you geographically close to clients and suppliers?
   8a. If yes, is this of importance to you?
9. Did the access/availability to office space impact the decision of location?
   9a. Was it easy or difficult to get office space here?
   9b. Was the rent preferable here in comparison to other cities?
10. How does the market for your products and/or services look in Uppsala?
   10a. Do you have many competitors here?
Personal networks
11. Are any of your business partners established in the area?
12. Did you have any contact with already established firms or people in this area before you moved here?
   12a. Did the previous contact impact the decision to move the business here?
   12b. If yes, in what way?
13. Did you have any connection to Uppsala prior to your establishment here?
14. Do you have family and friends in Uppsala?
   14a. If Yes, was this something that you took into consideration when you established the firm here?

Clustering
15. Are there any similar clean-tech firms in the area?
   15a. Do you cooperate with any of those firms?
   15b. What are the advantages of being located close to those firms?
16. Does your firm cooperate with any of the Universities in Uppsala in any way?

Talent
17. When you moved here, did you have your complete workforce with you or did you hire new employees?
   17a. If you hired any new employees, were they from Uppsala or anywhere else?
18. Based on what criteria’s do you hire new employees?
19. Is the potential need in the future for new, skilled and talented employees anything you considered when you established here?
20. Was the potential of hiring skilled personal in the area an important factor for your choice of location when you moved here?
21. In what way do you make use of the knowledge within the people in this location?
   21a. Was the access to the knowledge within the people in the area an important factor when establishing here?
Appendix 2 – The interview guide

Name of firm

- Soft factors
- Hard factors
- Talent
- Clustering
- Personal networks